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H	-----MGPTLAVTPPYGCGICKLPQPEYPPALIIIFMFCAMVITIVVDLIGNSMVILAVTKNKKLRNS
M	MATVPKSNMGPTKAVTPFGCIGCKLPKPDYPPALIIIFMFCAMVITVVVDLIGNSMVILAVTKNKKLRNS
R	-----
H	GNIFVVSLSVADMLVAIYPYPLMLHAMSIGGWDLSQLQCQMGVGTGLSVVGSIFNIVAIAINRYCYICH
M	GNIFVASLSVADMLVAIYPYPLMLYAMSVGGWDLSQLQCQMGVLTGLSVVGSIFNITAIAINRYCYICH
R	-----YCYICH
H	SLQYERIFSVRNTCIYLVITWIMTVLAVLPNMYIGTIEYDPRTYTCIFNYLNNPVFTVTIVCIHFVLPPL
M	SLQYKRIFSRLNTCIYLVVTWMTVLAVLPNMYIGTIEYDPRTYTCIFNYVNNPAFTVTIVCIHFVLPPL
R	SLQYNADLQPANTCIYLVVTWMTVLDVLPNVYIGTIEYDPRTYTCYFNVVNNPAFTVTIVCIHFVLPPL
H	IVGFCYVRIWTKVLAARDPAGQNPDNQLAEVRNFLTMEVIFLLFAVCWCPIPINVLTVLVAVSPKEMAGKIP
M	IVGYCYTKIWKVLAARDPAGQNPDNQFAEVRNFLTMEVIFLLFAVCWCPIPINVLTVLVAVIPKEMAGKIP
R	IVGYCYTKIWKVLADRDPAQNPDNQFAEVRNFLTMEVIFLL-----
H	NWLYLAAYFIAYFNSCLNAVIYGLLNENFRREYWTIFHAMRHPPIFFPGLISDIREMQEARTLARARAH
M	NWLYLAAYCIAFNSCLNAIIYGILNESFRREYWTIFHAMRHPILFISHLISDIRETWETRALTRARVRA
R	-----
H	RDQAREQDRAHACPAVEETPMNVVRNVPLPGDAAAGHPDRASGHPKPHSRSSSAYRKSASTHHKSVFHSK
M	RDQVREQERARACVAVEGTPRNVVRNVLLPGDASAPHSDRASVRPKPQT-----RSTSVYRK
R	-----

Fig. 1A

Applicants: David White

Title: COMPOSITIONS, KITS AND METHODS FOR PROGNOSTICATION,  
DIAGNOSIS, PREVENTION, AND TREATMENT OF BONE-RELATED  
DISORDERS AND OTHER DISORDERS

Attorney/Agent: Kerri Pollard Schray

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H AASGHLKPVSGHSPASGHPKSA-TVYPKPASVHFHFGDSVHFHFKPDSVHFHFKPASSNPKPITGHH  
M PASIHHKSI SGHPKSA SVYPKPASSVHCKPASVHFHFKPASVHFHFKGDSVYFKGDTVHYRAAS---KLVTSHR  
R -----  
  
H VSAGSHKSAFSAATSHPKP-----IKPATSHAEPPTADYPKPATTSHPKPAAADNPELSASHCPEIPAIA  
M ISAG-----PSTSHPTSMAGYIKSGTSHPATTTVDYLEPATTSHSVLTAVDLPEVSASHCLEMTSTG  
R -----  
  
H HPVSDSDLPESSPAAGPTKPAASQLES D TIADLPDPTVVTTSTNDYH D VVVVD-----VEDDPDEMAV  
M HLRAD-----ISASVLPSPVFFELATP-----PDTTAIPIASGDYRKVVLI D DSDSDSCSDEMAV  
R -----

Fig. 1B

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TGTTTGCTGTGGACCTGGCTGATCCTGAGCCTGCTGGGAGATCTTAACGATCCCAGAGCAACATGGGGCCCCACCCCTAG  
CGTTCCACCCCTATGGCTGATTTGGCTGTAAAGTACCCAGCCAGAAATACCCACCGCTCTAAATCATCTTTATGTTCTGCGC  
GATGGTTATCACCATCGTTGTAGACCTAATCGGCAACTCCATGGTCATTTTGGCTGTGACGAACAAGAAGCTCCGGAATTCT  
GGCAACATCTTCGTGGTCAGTCTCTGTGTGGCCGATATGCTGTGGCCATCTACCCATACCCCTTTGATGCTGCATGCCATGTCCA  
TTGGGGGCTGGGATCTGAGCCAGTTACAGTGCCAGATGGTCGGGTTTCATCACAGGGCTGAGTGTGGTCGGCTCCATCTTCAACAT  
CGTGGCAATCGCTATCAACCGTTACTGCTACATCTGCCACAGCCCTCCAGTACGAACGGATCTTCAGTGTGGCAATACCTGCATC  
TACCTGGTCATCACCTGGATCATGACCGTCTGTGCTGTCCCTGCCAACATGTACATTGGCACCATCGAGTACGATCCTCGCACCT  
ACACCTGCATCTTCAACTATCTGAACAACCCCTGTCTTCACTGTACCATCGTCTGCATCCACTTCGTCTCCTCCTCATCTGT  
GGGTTTCTGCTACGTGAGGATCTGGACCAAAGTGTGGGGGCCCGTGACCCCTGCAGGGCAGAACTCCTGACAAACCAACTTGTGTGAG  
GTTCCGCAATTTCTAACCATGTTTGTGATCTTCTCCTCTTTGCAGTGTGCTGGTGCCCTATCAACGTGCTCACTGCTTGGTGG  
CTGTGAGTCCGAAGGAGATGGCAGGCAAGATCCCCAACTGGCTTTATCTTGCAGCCCTACTTCATAGCCCTACTTCAACAGCTGCCCT  
CAACGCTGTGATCTACGGGCTCTCAATGAGAAATTTCCGAAGAGAAATACTGGACCATCTTCCATGCTATGCGGCACCCCTATCATATA  
TTCTTCCCTGGCCTCATCAGTGATATTCGTGAGATGCAGGAGGCCCGTACCCTGGCCCCGCGCCGCTGCCATGCTCGGACCAAG  
CTCGTGAACAAGACCGTGCCCATGCCCTGTCTGCTGTGGAGGAAACCCCGATGAATGTCCGGAATGTTCCATTACCTGGTGATGC  
TGACAGCTGGCCACCCCGACCGTGCCCTCTGGCCACCCCTAAGCCCCATTCAGATCCTCCTCTGCCCTATCGCAAATCTGCCCTCTACC  
CACCAACAAGTCTGTCTTAGCCACTCCAAGCTGCCCTCTGGTCAACCTCAAGCCCTGTCTCTGGCCACTCCAAGCCCTGCCCTCTGGTC  
ACCCCAAGTCTGCCACTGTCTACCCCTAAGCCTGCCCTCTGTCCATTTCAAGGTGACTCTGTCCATTTCAAGGTGACTCTGTCCA  
TTTCAAGCCCTGACTCTGTTTCATTTCAAGCCTGTCTCCAGCAACCCCAAGCCCATCACTGGCCACCATGTCTCTGCTGGCAGCCAC  
TCCAAGTCTGCCCTTCAGTGTGCCACCAAGCCACCCCTAAACCCATCAAGCCAGCTACCAAGCCATGCTGAGCCCAACCACTGCTGACT  
ATCCCAAGCCTGCCACTACCAAGCCACCCCTAAGCCCGCTGCTGTCTGCTGACAACCCCTGAGCTCTCTGCCCTCCCATTTGCCCCGAGATCCC  
TGCCATTTGCCACCCCTGTGTCTGACGACAGTGACCTCCCTGAGTCTGGCCCTCTAGCCCTGCGGCTGGGCCCAACCAAGCCTGCTGCC  
TAGCCAGCTGGAGTCTGACACCATCGCTGACCTTCTTGACCCCTACTGTAGTCACTACCAGTACCAATGATTACCATGATGTCGTGG  
TTGTTGATGTTGAAGATGATCCTTGATGAAATGGCTGTGTGAAAAATGCTCTCGTAGGTGGCCAGGCAGT

**Fig. 2A**

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AAGATCCTGAGCTTGCCCTGGGAGGAATGGCCACGGTCCCCAAGAGCAACATGGGACCTACAAAGCGGTTCCACCCCATTCGGC  
TGCAATGGCTGTAAAGCTGCCAAAGCCCGACTACCCGCCAGCTCTAATCATCTTTCATGTTCTGCGCAATGGTCATCACAGTCGTCG  
TAGACCTGATCGGGAACCTCCATGGTCATTTTGGCTGTGACCAAGAACAAGAGCTCCGAAATTCGCGCAACATCTTTGTGGCCAG  
CCTCTCTGTGGCAGACATGCTGGTGGCCATCTACCCCTACCCCTTTGATGCTGTATGCCATGTCAAGTTGGGGCTGGGATCTGAGT  
CAGCTCCAGTGCCAGATGGTCGGGTGGTCACAGGACTGAGCGTAGTCGGTCCATCTTCAACATTAAGTCCCATTCGCCATCAACC  
GTTACTGCTACATCTGCCACAGCCCTCCAATACAAAGCGGATCTTCAGCCCTGCGCAACACTTGCACTCTATCTGGTCGTTACCTGGGT  
CATGACTGCTCCTGGCTGTCCTTAACATGTACATTTGGCACCATTGAGTATGACCCCTCGCACCTACACCTGCATCTTCAACTAT  
GTGAACAAATCCTGCCTTTACCGTGACCATTTGCTGCAATCCACTTCGTCCTCCCTCTCATCATAGTTGGTTATTTGCTACACGAAAA  
TCTGGATCAAAGTGTGGCAGCCCGTGACCCAGCTGGACAGAAATCCTGACAAACAGTTTGTGAGGTTGAAATTTTCTAACCAT  
GTTTGTGATCTTCTCCTTTTGGCAGTTGCTGGTGCCCTGTCAATGTGCTCACTGTGTTGGTGGCTGTCAATCCAAAGGAAATGG  
CAGGCAAGATCCCCAAGTGGCTTTATCTTGACGCCCTACTGCATAGCCCTACTTCAACAGCTGCCCTCAACGCCCATCATCTACGGTAT  
CCTCAATGAGAGTTTCCGAAGAGAAATACTGGACCATCTTCCATGCTATGCGGCACCCCTATCCTGTTTCATCTCTCACCTCATCAGT  
GATATCGGGAGACTTGGGAGACCCGAGCTCTCACTGTCGCCGTGTCGTCGCGTGATCAAGTCCGAGAGCAAGAGCGTGCTC  
GTGCCGTGTGCTGCTGTGGAGGGACCCCAAGGAACGTCGGAATGTTCTACTGCTGCTGATGCAATCAGCACCCCACTCTGATCG  
TGCCCTCTGTCCTCCCAAGCCCAACCCAGGCTACTTCTGTCTACCGCAACCTGCCCTCTATCCACCCACAAGTCTATTTCTGGC  
CACCCCAAGTCTGCTGTTTACCCCTAAGCCAGCCCTCCTCTGTCCATTGCAAGCCCTGCCCTCTGTCCATTTCAAACCCGCCCTCTG  
TTCATTTCAAGGGTGACTCTGTCTATTTCAAGGGAGACACTGTCCATTACAGGGCTGCTTCCAAACTTGTCAACAGTCACCGTAT  
CTCTGCTGGCCCTTCCACCAAGTCACCCCTACATCCATGGCTGGCTACATTAATCTGGTACCAGCCACCCCTGCCACCCACTGTT  
GACTATCTCGAACCTGCCACCCAGCCACTCTGTGCTCACTGCTGTCGACCTCCCTGAGGTCTCAGCCCTCCCATTCCTTGAGA  
TGACCAAGCACTGGCCACCTCAGAGCTGACATTTCTGCCCTCTGTCCCTTCTGTACCCCTTCGAGCTTGTGCCACCCCTCCTGA  
TACCACCTGCAATCCCCCATTTGCCCTCTGGTGATTACCGCAAGGTCGTGCTTATTGATGATGATTCTGATGATTCTGCTCTGAT  
GAGATGGCTGTGTGA

Fig. 2B

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TACTGCTACATCTGCCACAGCCCTCCAGTACAATGCGGATCTTCAGCCTGCTAACACTTGCACTATCTGGTTGTTACCTGGGTCA  
TGACTGTTCTGGATGTCCTGCCCTAATGTGTACATTGGCACCATTTGAGTATGACCCCTCGCACCTACACCTGCTACTTCAACTATGT  
GAACAACCCCTGCCCTTTACTGTGACCATTTGTCTGCATCCACTTCGTCCTCCCTCTCATCATAGTCGGTTATTGCTACACAAAAATC  
TGGATCAAAGTGCTGGCAGACCGGGACCCAGCTGGACAGAATCCCTGACAACCCAGTTTGCTGAGGTTCCGAAATTTTCTAACCATGT  
TTGTGATCTTCCTCCTT

Fig. 2C

**Applicants:** David White

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**FIG. 3**

Applicants: David White

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DISORDERS AND OTHER DISORDERS

Attorney/Agent: Kerri Pollard Schray

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FIG. 4A

**Applicants:** David White

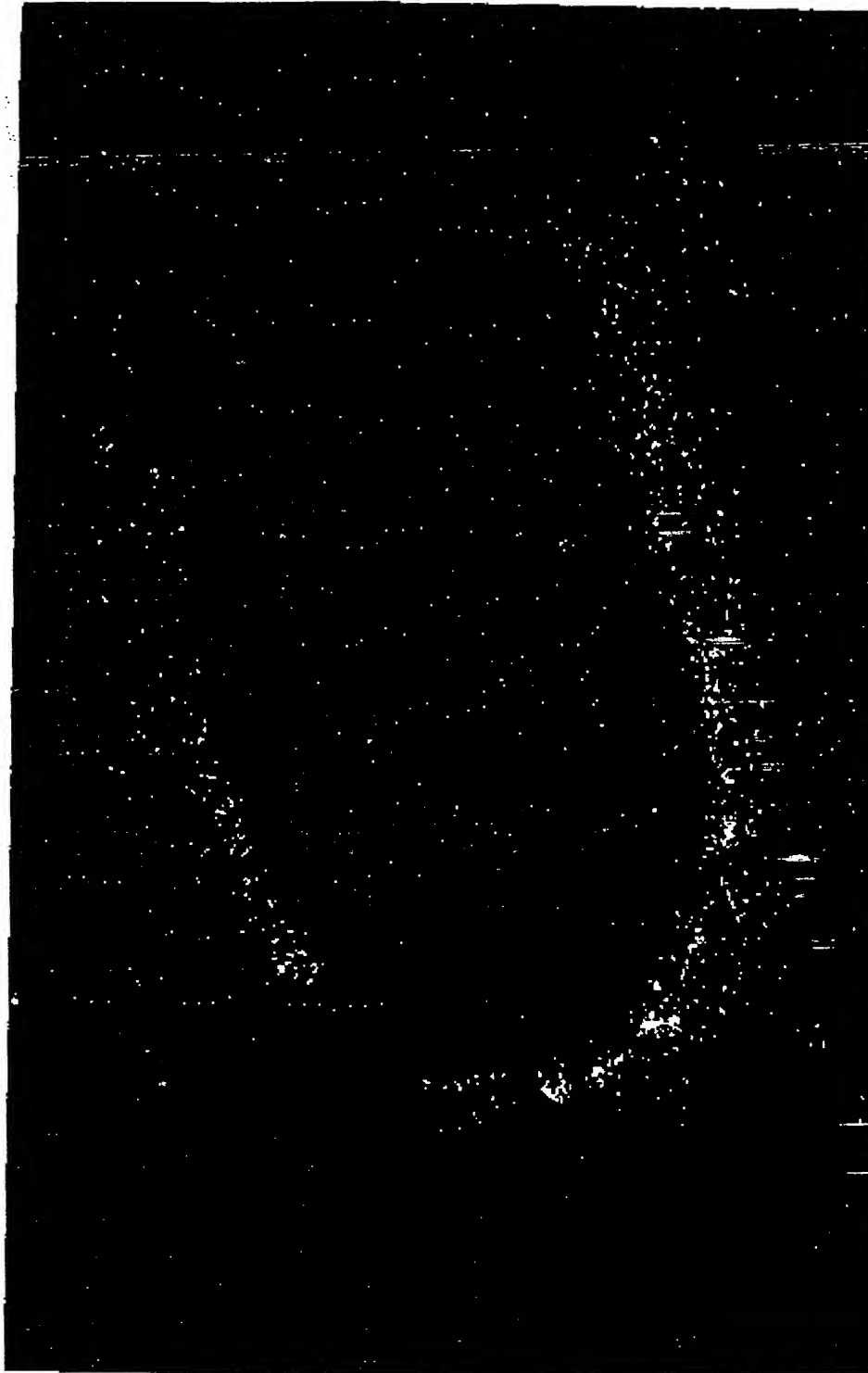
**Title:** COMPOSITIONS, KITS AND METHODS FOR PROGNOSTICATION,  
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**FIG. 4B**



Applicants: David White

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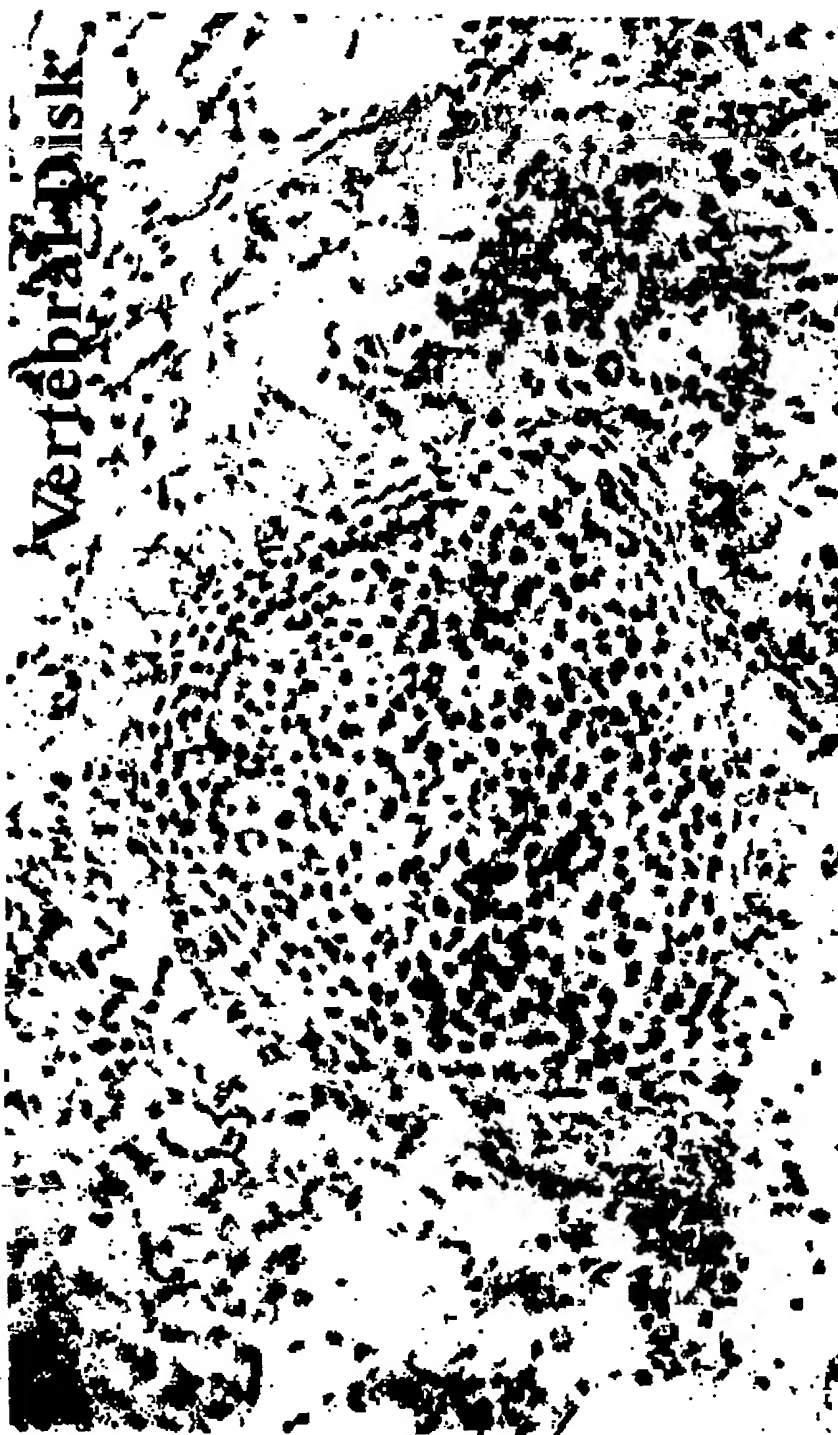


FIG. 4C

**Applicants:** David White

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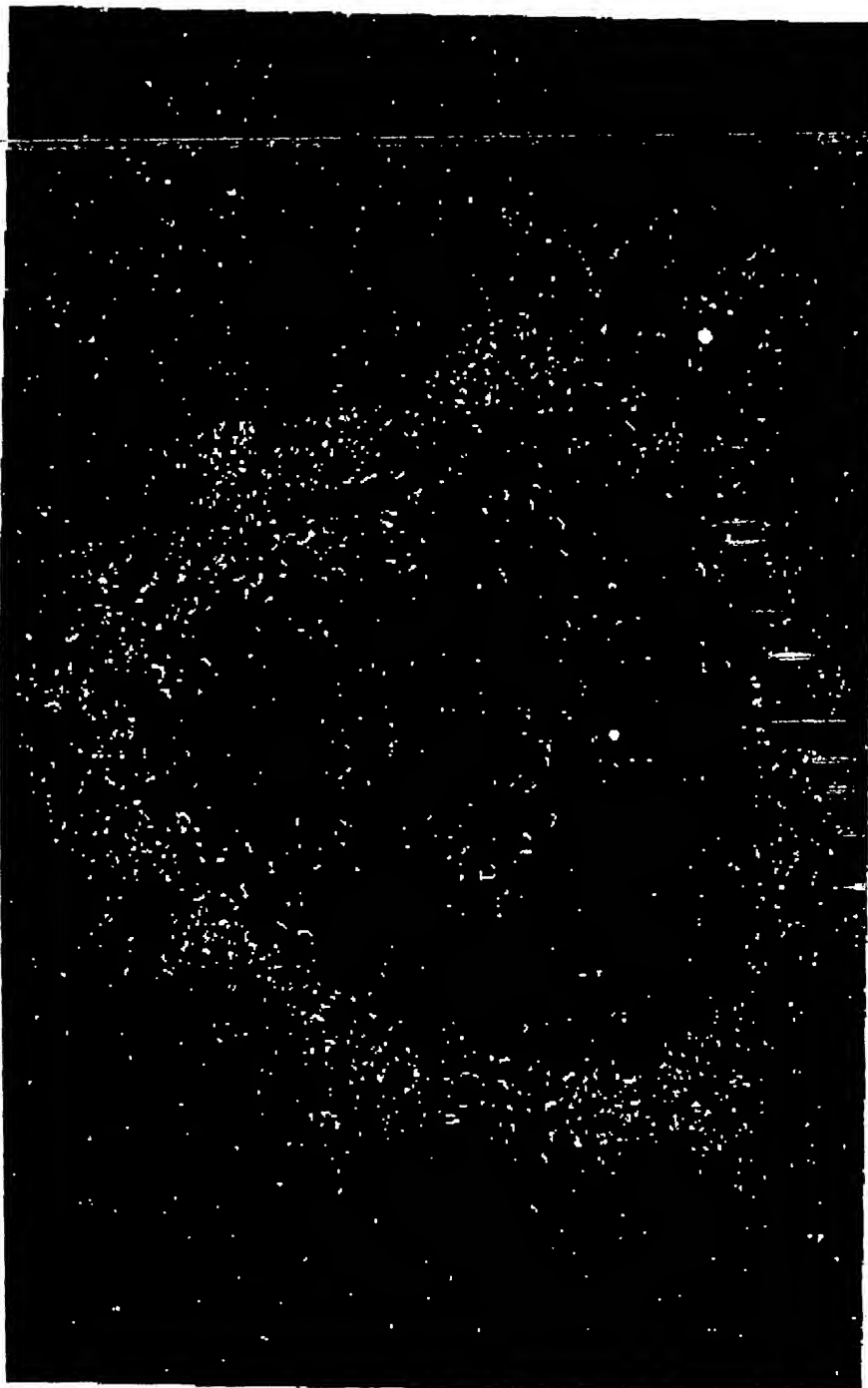


FIG. 4D

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AF003625	27599	tgtttgctgtctggacctggctgctgatacctgagcctgctgggagatcttaacgatcccc
U52219	1	
		tgtttgctgtctggacctggctgctgatacctgagcctgctgggagatcttaacgatcccc
AF003625	27659	aggagcaacatggggccaccctagcggttccccacccccctatggctgtattggctgtaag
U52219	61	
MRR AA	1	aggagcaacatggggccaccctagcggttccccacccccctatggctgtattggctgtaag
		M G P T L A V P T P Y G C I G C K
AF003625	27719	ctacccagccagaataacccacccggctcttaatacatctttatgttctgcgcgatgggtacc
U52219	121	
MRR AA	18	ctacccagccagaataacccacccggctcttaatacatctttatgttctgcgcgatgggtacc
		L P Q P E Y P P A L I I F M F C A M V
AF003625	27779	accatcgtttagacctaatcggcaactcccatggtcattttggctgtgacgaagaacaag
U52219	181	
MRR AA	38	accatcgtttagacctaatcggcaactcccatggtcattttggctgtgacgaagaacaag
		T I V V D L I G N S M V I L A V T K N K

Fig. 5A

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AF003625	27839	aagctccggaattcttgg	
U52219	241	aagctccggaattcttgg	
MRR AA	58	K L R N S G	
AF003625	30712	ttcaggcaacatcttcgtggtcagtcctctctgtggtggccgatatgctggtggccatctacccc	
U52219	252	ttctggcaacatcttcgtggtcagtcctctctgtggtggccgatatgctggtggccatctacccc	
MRR AA	62	S G N I F V V S L S V A D M L V A I Y P	
AF003625	30772	ataccctttgatgctgcatgccatgtccattgggggctgggatctgagccagttacagtg	
U52219	312	ataccctttgatgctgcatgccatgtccattgggggctgggatctgagccagttacagtg	
MRR AA	82	Y P L M L H A M S I G G W D L S Q L Q C	
AF003625	30832	ccagatggtcggttcatcacagggtgagtggtggtcggtcccatcttcaacatcgtggc	
U52219	372	ccagatggtcggttcatcacagggtgagtggtggtcggtcccatcttcaacatcgtggc	
MRR AA	102	Q M V G F I T G L S V V G S I F N I V A	

Fig. 5B

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AF003625	30892	aatcgctatcaaccgttactgctacatctgccacagcctccagtagcgaacggatcttcag	
U52219	432	aatcgctatcaaccgttactgctacatctgccacagcctccagtagcgaacggatcttcag	
MRR AA	122	I A I N R Y C Y I C H S L Q Y E R I F S	
AF003625	30952	tgtgcgcaatacctgcattctacctgggtcatcacctgggatcatgaccgtcctggctgtcct	
U52219	492	tgtgcgcaatacctgcattctacctgggtcatcacctgggatcatgaccgtcctggctgtcct	
MRR AA	142	V R N T C I Y L V I T W I M T V L A V L	
AF003625	31012	gcccaacatgtacattggcaccatcgagtagcatcctcgcacctacacctgcatcttcaa	
U52219	552	gcccaacatgtacattggcaccatcgagtagcatcctcgcacctacacctgcatcttcaa	
MRR AA	162	P N M Y I G T I E Y D P R T Y T C I F N	
AF003625	31072	ctatctgaacaaccctgtcttcaactgttaccatcgctcgtcatccacttcgtccctct	
U52219	612	ctatctgaacaaccctgtcttcaactgttaccatcgctcgtcatccacttcgtccctct	
MRR AA	182	Y L N N P V F T V T I V C I H F V L P L	

Fig. 5C

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AF003625	31132	cctcatcgtgggtttctgctacgtgaggatctggaccaagtgtggcgcccgtagcccc	
U52219	672	cctcatcgtgggtttctgctacgtgaggatctggaccaagtgtggcgcccgtagcccc	
MRR AA	202	L I V G F C Y V R I W T K V L A A R D P	
AF003625	31192	tgcagggcagaatcctgacaaaccaacttgctgaggttcgcaattttctaaaccatgtttgt	
U52219	732	tgcagggcagaatcctgacaaaccaacttgctgaggttcgcaattttctaaaccatgtttgt	
MRR AA	222	A G Q N P D N Q L A E V R N F L T M F V	
AF003625	31252	gatcttcctcctctttgcagtgctggtgccctatcaacgtgctcactgtcttggtggc	
U52219	792	gatcttcctcctctttgcagtgctggtgccctatcaacgtgctcactgtcttggtggc	
MRR AA	242	I F L L F A V C W C P I N V L T V L V A	
AF003625	31312	tgtcagtcgccgaaggagatggcaggcaagatccccaaactggctttatcttgcagcctactt	
U52219	852	tgtcagtcgccgaaggagatggcaggcaagatccccaaactggctttatcttgcagcctactt	
MRR AA	262	V S P K E M A G K I P N W L Y L A A Y F	

Fig. 5D

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AF003625	31372	catagcctacttcaacagctgcctcaacgctgtgatctacgggctcctcaatgagaattt
U52219	912	catagcctacttcaacagctgcctcaacgctgtgatctacgggctcctcaatgagaattt
MRR AA	282	I A Y F N S C L N A V I Y G L L N E N F
AF003625	31432	ccgaagagaatactggaccatcttccatgctatgcggcacccctatcatattcttctctgg
U52219	972	ccgaagagaatactggaccatcttccatgctatgcggcacccctatcatattcttccctgg
MRR AA	302	R R E Y W T I F H A M R H P I I F F P G
AF003625	31492	cctcatcagtgatatctcgtgagatgcaggagggcccgtagccctggcccgcccggtgccca
U52219	1032	cctcatcagtgatatctcgtgagatgcaggagggcccgtagccctggcccgcccggtgccca
MRR AA	322	L I S D I R E M Q E A R T L A R A R A H
AF003625	31552	tgctcgcgacccaagctcgtgaacaagaccgtagcccatgcctgtcctgctgtggaggaaac
U52219	1092	tgctcgcgacccaagctcgtgaacaagaccgtagcccatgcctgtcctgctgtggaggaaac
MRR AA	342	A R D Q A R E Q D R A H A C P A V E E T

Fig. 5E

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AF003625	31612	ccgatgaatgtccggaatgtccattacctggatgctgcagctggccaccccgaccg
U52219	1152	ccgatgaatgtccggaatgtccattacctggatgctgcagctggccaccccgaccg
MRR AA	362	P M N V R N V P L P G D A A A G H P D R
AF003625	31672	tgcctctggccaccctaaagccccattccagatccctcctctgcctatcgcaaatctgcctc
U52219	1212	tgcctctggccaccctaaagccccattccagatccctcctctgcctatcgcaaatctgcctc
MRR AA	382	A S G H P K P H S R S S A Y R K S A S
AF003625	31732	taccacacaaagtctgtctttagccactccaaggctgcctctggtcacctcaagcctgt
U52219	1272	taccacacaaagtctgtctttagccactccaaggctgcctctggtcacctcaagcctgt
MRR AA	402	T H H K S V F S H S K A A S G H L K P V
AF003625	31792	ctctggccactccaagcctgcctctggtcaccaccaagtctgccactgtctaccctaagcc
U52219	1332	ctctggccactccaagcctgcctctggtcaccaccaagtctgccactgtctaccctaagcc
MRR AA	422	S G H S K P A S G H P K S A T V Y P K P

Fig. 5F



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AF003625	31852	tgcctctgtccatttcaaggctgactctgtccatttcaagggtgactctgtccatttcaa
U52219	1392	tgcctctgtccatttcaagggtgactctgtccatttcaagggtgactctgtccatttcaa
MRR AA	442	A S V H F K G D S V H F K G D S V H F K
AF003625	31912	gcctgactctgttccatttcaagcctgcttccagcaaccccaagcccatcactggccacca
U52219	1452	gcctgactctgttccatttcaagcctgcttccagcaaccccaagcccatcactggccacca
MRR AA	462	P D S V H F K P A S S N P K P I T G H H
AF003625	31972	tgtctctgtggcagccactccaagtctgccttcagtgtgctgccaccagccaccctaaacc
U52219	1512	tgtctctgtggcagccactccaagtctgccttcagtgtgctgccaccagccaccctaaacc
MRR AA	482	V S A G S H S K S A F S A A T S H P K P
AF003625	32044	catcaagccagctaccagccatgctgagccaccactgtgactatcccaagcctgccac
U52219	1572	catcaagccagctaccagccatgctgagccaccactgtgactatcccaagcctgccac
MRR AA	502	I K P A T S H A E P T T A D Y P K P A T

Fig. 5G

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AF003625	32104	taccagccaccctaaagcccaactgctgctgacaaaccctgagctctctgcctccattgccc
U52219	1632	taccagccaccctaaagcccgctgctgctgacaaaccctgagctctctgcctccattgccc
MRR AA	522	T S H P K P A A A D N P E L S A S H C P
AF003625	32164	cgagatccctgcccattgcccaccctgtgtctgacgacagtgacccctcgagtcggccrc
U52219	1692	cgagatccctgcccattgcccaccctgtgtctgacgacagtgacccctcgagtcggccrc
MRR AA	542	E I P A I A H P V S D S D L P E S A S
AF003625	32224	tagccctgcccgtgggcccaccacgaagcctgctgccagccagctggagcttgacaccatcgc
U52219	1752	tagccctgcccgtgggcccaccacgaagcctgctgccagccagctggagcttgacaccatcgc
MRR AA	562	S P A A G P T K P A A S Q L E S D T I A
AF003625	32284	tgaccttcctgaccctactgtagtcactaccagtaccgaatgattaccatgatgtcgtggt
U52219	1812	tgaccttcctgaccctactgtagtcactaccagtaccgaatgattaccatgatgtcgtggt
MRR AA	582	D L P D P T V V T T S T N D Y H D V V V

Fig. 5H

```
AF003625    32344   tattgatgttgaagatgataccttgatgaaatggcgctgtgtgaaaaaatgccttcgttaggtggc  
            | |||||  
U52219      1872   tgttgatgttgaagatgataccttgatgaaatggcgctgtgtgaaaaaatgccttcgttaggtggc  
MRR AA       602     V D V E D P D E M A V ^^
```

**Fig. 51**